

Horse + Donkey = Mule

by Morris Helmig & Sybil E. Sewell

A mule combines the traits of its horse dam and donkey sire to create a new animal with its own distinctive characteristics. Here are the notable differences between horses, donkeys, and mules.

Head—A donkey's head is larger than that of a horse, as is evidenced by its need for a bridle with a larger browband than is required for a horse or pony of comparable size. Donkey owners like to point out that this characteristic indicates a larger brain capacity, and therefore greater intelligence. The head of a mule or hinny is larger than the head of a horse of comparable size.

Ears—A donkey's ears are longer than those of the horse and have an excellent blood supply, which is a desert adaptation for cooling the body. A mule's ears are inherited from the donkey, but are not quite as long as the donkey's. A hinny's ears are shorter than those of a donkey, but are much wider.

Eyes—A donkey's eyes are larger in proportion to the head than those of a horse. Donkeys and mules have heavier eye sockets set farther out on the side of the head, resulting in a wider field of vision than the horse has. The horse's eye sockets are round, the donkey's are D-shaped. The mule's eye sockets are somewhat D-shaped, as seen in male (horse) mules with heavy brow ridges.

Tail—The donkey has a cow-like tail covered by short coarse body hair, except for a tuft at the end. The horse's thick, long tail is inherited by the mule, but the mule's tail hair is coarse like a donkey's rather than fine like a horse's, and the top is not as full as a horse's tail. The hinny's tail is more like that of a donkey.

Chestnuts (Ergots)—The donkey has chestnuts on the front legs, but only rarely on the hind legs, where you would find them on a horse. Like the donkey, a mule or hinny rarely has chestnuts on the hind legs.

Hoof—A donkey's hooves are more elastic, tougher, smaller, rounder, and upright compared to those of a horse. Mules and hinnies inherit the donkey's hoof characteristics, but to a lesser degree—not quite as upright, small, or tough. Like the donkey, the mule needn't be shod unless the animal is regularly worked in rocky terrain.

Skeleton—The donkey's spinal column lacks the fifth lumbar vertebrae (loin area) normally found in the horse. The donkey's pelvis is higher, steeper, and less broad than a horse's, due to the longer length and steeper angle of the upper hip bones. The donkey's croup is therefore less round or broad than a horse's croup. Most (but not all) mules have the horse's fifth lumbar vertebrae and the donkey's short croup, and may or may not have the horse's musculing. Overall size is governed by the dam, although offspring may grow taller than either parent.

Coat—The donkey's coat is longer and coarser than that of a horse. The donkey lacks the horse's protective undercoat and is therefore more susceptible to climatic conditions such as rain, wet snow, and wind, but the donkey is insulated from heat and cold by air pockets between its longer hairs. The mule's or hinny's coat is fine in summer, like a horse's, but coarse in winter, like a donkey's. Coat color tends to be like the dam's.

Voice—Each mule or hinny makes a distinctive sound that might be described as a cross between the donkey's bray and the horse's whinny.

Reproduction—The donkey is more prepotent [high in its ability to transmit certain characteristics to its offspring] but less fertile than the horse. It has 50% to 60% conception rate, compared to the horse's average of 60% to 65%. The conception rate for mares carrying mule foals is about same as for horse foals, but for jennets carrying hinny foals the rate drops to about 25%.

Compared to a gestation period of 11 months for the horse, the donkey's gestation period averages 12 months, but may vary between 11 and 14 months. The gestation period for a hybrid foal is usually intermediate between the parent species. Production of twins, although rare, is more frequent among donkeys than among horses.

The mule is a sterile hybrid, yet occasionally a mare mule will be fertile. The difference between the numbers of chromosomes in the cells of the donkey (62 chromosomes; 31 pairs) and the horse (64 chromosomes; 32 pairs) results in a mule or hinny with 63 chromosomes. This odd number is responsible for mule's sterility—the donkey and horse chromosomes are unable to form matched pairs during the early stages of conception, resulting in the death of the reproductive cells.

Intelligence—The donkey is more intelligent than the horse, but its instincts give it a different behavior pattern that is often mistaken for stubbornness.

A frightened donkey won't, for example, bolt in panic like a horse will. The donkey is instead more likely to stop and carefully study the situation before determining the best course of action. Like the donkey, the mule or hinny is highly intelligent and has a well-developed instinct for self-preservation.

Longevity—A lifespan of 30 to 50 years is common for a donkey. Horses average 25 to 30 years. Thanks to hybrid vigor, mules and hinnies may live 30 to 40 years (and sometimes up to 50), with a comparably longer working life than that of a horse.

The above was adapted from an article by Sybil E. Sewell and Morris Helmig, and is reprinted here with permission. Sybil Sewell lives in Alberta, Canada. She welcomes a connection with your students. Look her up on the map, and write her a letter!

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